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AUTHORITY

USAAS ltr 8 Oct 1976

(2) UNITED STATES ARMY AVIATION BOARD
Fort Rucker, Alabama

ATBG-ACAB AVN 3262 (6)

(4) 14 MAR 1962

SUBJECT: (3) Report of Test, Project No. AVN 3262, "Informal Evaluation of the Brantly B2 Helicopter"

(5) - 12 p

TO: (7) - U
Commanding General
United States Continental Army Command
ATTN: ATDEV
Fort Monroe, Virginia

1. AUTHORITY.

a. Directive. Message, ATDEV-6 701346, Commanding General, USCONARC, 26 January 1962.

b. Purpose. To conduct an informal evaluation of the Brantly B2 Helicopter as presently certificated, using approved Military Characteristics for the Light Observation Helicopter as a guide.

2. BACKGROUND.

a. In 1958, the US Army Aviation Board began evaluation of several light helicopters to determine which might best fulfill the Army's existing requirement for a light two-place observation helicopter. Service tests of the YHO-1DJ (Djinn) and the YHO-2HU (Hughes) helicopters were performed in 1958 and 1959 respectively, and the YHO-3BR (Brantly) service test was begun in May 1959. The test of the Brantly was interrupted after approximately eleven hours of flying as a result of a fatal accident which occurred during US Navy tests of the helicopter at Patuxent River, Maryland. A review to determine the "feasibility and/or desirability of continuing the program" was conducted by Chief, Research and Development, (reference d) and provided the following information:

HEADQUARTERS
UNITED STATES CONTINENTAL ARMY COMMAND
FORT MONROE, VIRGINIA

ATDEV-6 452.1 3 April 1962

SUBJECT: Report of Test, Project No. AVN 3262, "Informal Evaluation of the Brantly B2 Helicopter"

TO: Chief of Research and Development
Department of the Army
Washington 25, D. C.

1. References:

a. Message, OCRD, DA587232, dated 17 January 1962.

b. Message, Hq USCONARC, ATDEV-6 701346, dated 25 January 1962.

c. Message, Hq USCONARC, ATDEV-6 703216, dated 27 February 1962.

2. Inclosed for your information is a copy of letter report of the informal evaluation of the Brantly B2 helicopter by the US Army Aviation Board.

3. This headquarters concurs in the conclusions and recommendations as stated in paragraphs 5 and 6 of attached letter report.

FOR THE COMMANDER:

LEE L. STEWART
Colonel, AGC
Asst Adjutant General

1 Incl
a/s

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(1) The aircraft showed evidence of faulty design and incomplete engineering testing.

(2) Bureau of Aeronautics would not proceed with a test program until the helicopter passed a complete Navy technical analysis and a structural flight demonstration performed by the contractor in accordance with military specifications.

(3) Technical analysis by the Navy would require approximately six months and the resulting cost of re-engineering the helicopter would exceed contract obligations.

(4) The cost of a satisfactory contractor's structural flight demonstration was estimated by the Bureau of Aeronautics to be $75,000.

(5) The United States Continental Army Command (USCONARC) recommended termination of the YHO-3BR evaluation program on the basis of the unsuitable low rotor configuration and poor cockpit visibility in addition to faulty design as determined by the Bureau of Aeronautics.

b. As a result of this review, the evaluation program was terminated.

c. Following engineering changes and product improvement, the Brantly B2 Helicopter received Federal Aviation Authority airworthiness certification and was placed on the civilian market.

d. On 26 January 1962, USCONARC directed the US Army Aviation Board to conduct an informal evaluation of the Brantly B2 Helicopter as presently certificated. The test helicopter was received 28 January and testing was begun 29 January 1962. A maintenance package was not received.

3. DESCRIPTION OF MATERIEL.

a. The Brantly B2 Helicopter is a two-place, side-by-side, single-engine helicopter with a single main rotor and an antitorque tail rotor. The three main blades are all-metal, and each

consists of two sections which are connected by a lag and flapping hinge at approximately 40 percent of the blade radius in addition to a conventional flap hinge at the hub. The tail rotor is all-metal. The engine is a four-cylinder, air-cooled Lycoming VO-360 A1A, rated at 172 b.-hp. at 2900 r.p.m., utilizing 91/96 octane gasoline. The engine is vertically mounted and has an induction-cooling system which eliminates cooling fans and fan belts. The skid-type landing gear incorporates four oleo shock-absorbers mounted on the lateral struts.

b. Installed radio equipment consisted of a King KY-90 VHF transmitter/receiver.

c. The cabin is cylindrical with a spherical plexiglass nose canopy. Two small plexiglass bubbles over the cabin give additional head-room for the occupants. The pilot compartment doors are hinged at the top and swing outward and up. The fuselage aft of the center section, which houses a baggage compartment, is conical and is of stressed-skin (monocoque) construction.

d. Power is transmitted to the main rotor through a drive system consisting of a centrifugal clutch, a flexible coupling, a free-wheeling unit, and a planetary transmission. The tail rotor is geared to the main rotor through beveled gears in the transmission. The tail-rotor drive shaft is housed in a tube extending the full length of the fuselage to the intermediate gear box. From this point power is transmitted to the tail rotor through a short vertical drive shaft and the tail-rotor gear box. A hand-operated rotor brake was provided.

e. Weight data of the Brantly B2 are as follows:

Design gross weight	1600 pounds
Empty weight	1023 pounds
Payload (useful load less 200-pound pilot, full fuel (186 pounds), and oil (17 pounds)) ...	174 pounds
Baggage compartment capacity	50 pounds

f. Dimensions of the Brantly B2 are as follows:

Overall height	6 feet, 11.75 inches
Overall length (main rotor tip to tail rotor tip)	27 feet, 9.0 inches
Rotor diameter	23 feet, 11.25 inches
Fuselage width	3 feet, 11 inches
Skid gear tread	5 feet, 8.25 inches

4. TESTS. The helicopter was flown by aviators of the US Army Aviation Board for a total of 25 flying hours in the vicinity of Fort Rucker, Alabama, during the period 29 January - 9 February 1962. Maneuvers expected of light observation helicopters were performed. Various conditions of gross weight and center-of-gravity location were investigated. A determination was made of flight characteristics, performance, and pilot training requirements. Suitability was evaluated, using the MC's for a Light Observation Helicopter (reference e) as a guide.

a. General.

(1) Cockpit Configuration. The cockpit configuration was not satisfactory for the following reasons:

(a) Forward and sideward visibility was poor due to interference from the horizontal door hinge and was distorted from the curvature of the bubbles over the cabin. Rearward visibility was poor in comparison with other light helicopters evaluated by this Board.

(b) Head space was insufficient when protective helmets were worn by the occupants.

(c) Exit and entry was hampered by the small size of the doors. No handholds were provided. The doors were not jettisonable.

(d) The adjustments to accommodate pilots of various sizes were not adequate:

1. The anti-torque pedals were not adjustable.

2. The backs of the seats were hinged at the top and could be moved forward four inches at the bottom as the only adjustment.

(e) Cyclic, throttle, and collective control friction devices were ineffective.

(f) The toggle switch and indicator for the electrically operated longitudinal trim device were located on the floor and were hidden from the pilot's normal range of vision. It was necessary to remove the hand from the collective pitch to operate the trim device.

(g) The landing light switch was not readily accessible without removing the hand from the throttle.

(h) No shoulder harness was provided.

(i) Only one headset/microphone outlet was provided for the VHF radio.

(2) Overall Configuration.

(a) The low ground-to-main-rotor clearance (approximately 5.75 feet when rotating and with collective pitch down) constituted a hazard to personnel and was considered particularly dangerous for field operations.

(b) Payload capability (useful load less a 200-pound pilot, oil, and full fuel) was 174 pounds. With the Army-required avionics equipment installed (approximately 100 pounds) the payload would be reduced to approximately 74 pounds.

(c) The test helicopter was not equipped with a heater-defroster although the manufacturer indicated a muff-type heater is available with an attendant decrease in payload.

(3) Ground-Handling. Ground-handling characteristics were satisfactory. One man could move the helicopter over hard surfaces. Two men were required to move the helicopter over uneven sod surfaces.

(4) Ease of Servicing. Servicing provisions were satisfactory.

(5) Interior and Exterior Lighting. During night flight, the right position light created a distracting reflection from the main rotor. The two fixed landing lights were effective although the switch was not operable without moving the left hand from the throttle. The individual instrument lights were satisfactory and controllable by rheostat.

(6) Noise Level. The noise level inside the cockpit was acceptable. From a distance the helicopter had a distinctive sound which reached a maximum of approximately 80 decibels at close range.

(7) Landing Gear. The oleo-shock-strut-type landing gear was very desirable for most operations; however, it was detrimental to running takeoffs (see paragraph b(6) below).

b. Flight Characteristics.

(1) Stability. Stability along the longitudinal axis was poor. The lag time between stick displacement and rotor attitude change was excessive, and extended flight in turbulent air brought on rapid attitude changes which required continuous corrective action.

(2) Correlation. The collective-pitch-throttle correlation was exceptionally good. One throttle position sufficed for the normal range of collective pitch movement. Full power was obtained by moving pitch and throttle to their respective maximum limits.

(3) Controls. The flight controls were satisfactory except that the only trim device provided for lateral cyclic position was a fixed spring which could not be adjusted from the cockpit.

Except in flight, the spring forced the cyclic to the extreme right limit when released despite the application of the friction holding device. This required the pilot to hold the cyclic manually in the neutral position.

(4) Center-of-Gravity Position. There was sufficient control travel to provide control at the extremes of allowable center-of-gravity position.

(5) Hovering. Sideward and rearward hovering flight was performed at airspeeds up to 30 knots. Flight characteristics during hover were satisfactory with the following exceptions:

(a) Precise directional control was difficult due to the varying sensitivity of the anti-torque rotor to the main rotor downwash.

(b) It was necessary to remove the hand from the collective pitch while adjusting the trim control.

(6) Running Takeoffs. Running takeoffs were impractical due to the spread of the front portion of the gear when forward movement was begun. Takeoffs, therefore, could not be made unless the helicopter could almost hover.

(7) Other Maneuvers. The following maneuvers were performed satisfactorily:

(a) Normal takeoffs and landings

(b) Running landings

(c) Maximum performance takeoffs and steep approaches

(d) Slope landings to include 15-degree slopes

(e) Rapid decelerations

(f) Steep turns.

(8) Autorotations. Autorotational characteristics were acceptable. Autorotational landings were performed at various gross weights up to the maximum and at entry airspeeds from 0 to 87 knots. Rotor decay following abrupt throttle retardation was extremely rapid although buildup following lowering of the pitch was satisfactory. Rotor inertia was good by comparison with other small helicopters. Slowest rate of descent was obtained at an indicated airspeed (IAS) of 52 knots, while the best angle of glide resulted at IAS of 60 knots. The best angle of glide was considered to be steep by comparison with that of the H-13 helicopter. The oleo-strut gear configuration contributed very favorably to the autorotational landing characteristics, particularly in autorotations from a hover, where the effect of collective pitch application was barely noticeable.

(9) Nap-of-the-Earth Operation. The small rotor diameter, the high power-to-weight ratio, and the oleo-strut landing gear contributed to the effectiveness of the helicopter in nap-of-the-earth operation. Engine starts, rotor engagements, conversion to flight, approaches, and landings were performed with a minimum of wasted effort and time.

c. Performance.

(1) Comparative Data. Comparative data are shown below in chart form beside comparative data accumulated during testing of the H-13H, H-23D, YHO-1DJ, and YHO-2HU:

(a) Configuration.

Weight Information	Brantly B2	YHO-2HU	YHO-1DJ	H-13H	H-23D
Basic empty wt., lb.	1041	940	793	1720	1780
Max. gross wt., lb.	1600	1550	1770	2550	2700
Payload (less 200-lb. pilot and full fuel), lb.	174	260	374	372	432
Tactical electronic communications installed	No	No	No	Yes	Yes

Dimensions	Brantly B2	YHO-2HU	YHO-1DJ	H-13H	H-23D
Overall length, ft.	27.75	28.3	36	41.4	40.5
Overall height, ft.	6.98	7.97	5.8	9.3	10.1
Rotor diameter, ft.	23.94	25.0	36.0	35.0	35.0

(b) Performance at Maximum Gross Weight at Takeoff.

	Brantly B2	YHO-2HU	YHO-1DJ	H-13H	H-23D
Range, total, nautical miles	190	168	115	161	180
Fuel consumption, gal./hr. 65-70 knots	11.2	9.7	34.0	15.5	17.5
Endurance, maximum, hours	2.77	3.3	2.2	3.3	3.4
Max. speed, knots	87	75	71	80	90
Rate of climb, ft. per min.					
To 2000' alt.	1200	1260	500	920	920
To 10000' alt.	500	833	--	506	426
Service ceiling					
Pressure altitude, ft.	9500	11,000	7700	11,850	11,190
Autorotations					
Rate of descent, ft. per min.					
40 knots, IAS	1930	1900	1200	1780	2100
60 knots, IAS	2000	2220	----	2360	2540

(2) Range. The maximum range at the maximum gross weight of 1600 pounds was found to be approximately 190 nautical miles at an average indicated airspeed of 75 knots near sea level. At the maximum allowable speed (87 knots indicated airspeed) a range of approximately 170 nautical miles was possible (zero wind, no fuel reserve). This allowed a 152-nautical-mile range, zero wind, with a 30-minute fuel reserve.

(3) Endurance. Maximum endurance at maximum gross weight was determined to be approximately 2.77 hours at an indicated airspeed of 70 knots near sea level.

(4) Rate of Climb. Climbs were performed at gross weights of 1360 and 1600 pounds. Following is a summary of the climbs:

Density Altitude (Ft.)	Rate of Climb Ft./Min. (Gross weight 1600 lb.)	Rate of Climb Ft./Min. (Gross weight 1360 lb.)
1000	1100	1200
2000	1000	1220
3000	880	1150
6000	400	600
8000	300	500
9500	100 (Service ceiling)	300

(5) Hover Ceiling. Hover ceiling at maximum gross weight (out of ground effect) was determined to be from 2000 to 3000 feet density altitude. The engine was particularly susceptible to carburetor icing and application of carburetor heat affected the hover performance significantly by causing a loss of power.

(6) Maximum Speed. Placarded maximum indicated airspeed for the helicopter was 100 miles per hour (87 knots) to 2000 feet with a reduction of three miles per hour per 1000 feet above 2000 feet. Through flight checks, it was determined that with the helicopter at maximum gross weight at takeoff, placarded airspeed could be equalled at all altitudes up to service ceiling without the use of full power.

d. Personnel.

(1) Flight. Pilots with light helicopter experience required a minimum of one hour of flight and one hour of ground instruction before becoming proficient for solo flight. The relatively poor visibility, low ground-to-rotor clearance, and lack of radio intercommunication detracted from its suitability as a trainer.

(2) Maintenance. On-the-job training would be adequate to qualify a trained helicopter mechanic as crew chief on the helicopter.

(3) Manuals. The operator's and maintenance manuals provided by the manufacturer were considered inadequate for military use.

e. Comparison with Military Characteristics. Using the Military Characteristics for a Light Observation Aircraft (reference e) as a guide, an estimate of extent to which the Brantly helicopter meets the Army's requirements was made. Details are attached as inclosure 1.

f. Maintenance. Maintenance was performed by an enlisted mechanic with the advisory service of a manufacturer's technical representative. The only maintenance necessary during the 25-flying hour evaluation consisted of preflight, postflight, and one 25-hour inspection. An average of 0.3 man-hours of maintenance was expended per hour of flight time.

5. CONCLUSIONS.

a. The Brantly B2 does not fulfill the requirement for a Light Observation Helicopter when compared to the MC's.

b. Although the Brantly B2 possesses several favorable design characteristics, it does not have sufficient potential to warrant further Army consideration.

6. RECOMMENDATION. It is recommended that no further consideration be given to the Brantly B2 Helicopter for Army use.

7. REFERENCES.

a. Letter, BuAer to OCofT, 23 June 1959, subject: "Brantly YHO-3BR Helicopter Program, Termination of."

b. TWX, HQ, USCONARC to BuAer, ATDEV-6 757861, DTC 121923Z regarding termination of Brantly evaluation.

c. DF, Comment 1, TCACH-D, CofT to CRD, 11 September 1959, subject: "Brantly YHO-3BR Helicopter Program, Termination of."

d. Letter, CRD1H-12821, CRD to Chief of Transportation, subject: "Brantly YHO-3BR Helicopter Program, Termination of," dated 1 October 1959.

e. Memorandum for Record of Transportation Corps Technical Committee, TCTC 3408 Meeting 128, 20 May 1960, subject: "Light Observation Aircraft; Military Characteristics."

f. Brantly Helicopter Corporation Rotorcraft Flight Manual, Model B-2 Helicopter.

g. Brantly Helicopter Corporation, B-2 Maintenance Manual, Revision G.

h. Report of Test, Project No. AVN 5258, "Service Test of the YHO-2HU (Hughes 269A) Helicopter."

i. Message, ATBG-SEC 2-57, US Army Aviation Board, 26 February 1962.

ATBG-ACAB AVN 3262
SUBJECT: Report of Test, Project No. AVN 3262, 'Informal Evaluation of the Brantly B2 Helicopter"

j. Message, ATDEV-6 703216, Commanding General, USCONARC, 27 February 1962.

Jack L. Marinelli

JACK L. MARINELLI
Colonel, Artillery
President

1 Incl
Detailed Comparison of Brantly B2 with MC's for Light Observation Aircraft

Detailed Comparison of Brantly B2

With Military Characteristics for Light Observation Aircraft,

TCTC Item 3408, Meeting 128, 20 May 1960

Military Characteristics	Brantly B-2 Meets M/C's
II - OPERATIONAL CHARACTERISTICS	
7. Configuration.	
a. Size and weight. - It is desired that the external dimensions and weight of this helicopter not exceed those of the H-13.	Yes
b. Power plant. - The helicopter will be powered by a turbine engine in the 250 horsepower category.	No
c. Structure and design.	
(1) The following are required:	
(a) Main rotor blades which are manually foldable and unfoldable without retracking, to facilitate concealment, maintenance, and transport.	No
(b) Landing gear to permit running takeoffs and landings, and to facilitate ground handling for maintenance and concealment purposes. It shall permit landings on slopes of 10 degrees (15 degrees desired). Adequate flotation on soft ground shall be provided.	Yes, except for running takeoffs.
(c) CG travel should be great enough so that indiscriminate loading in the cabin (up to	Yes

mcl 1

Military Characteristics	Brantly B-2 Meets M/C's
the limit of the load capacity of the aircraft) will not significantly affect the maneuver capability of the aircraft.	
(d) Provisions for hoisting, jacking, mooring, and ground handling.	Yes
(e) Ground clearance sufficient for operation and ground handling on rough ground. Protuberances which might make ground handling in brushy areas difficult will be avoided.	Yes
(f) Design compatible with standard fueling and defueling equipment, to include a large straight filler neck.	Yes
(g) Over-all external noise levels not exceeding those of the H-13. (Noise levels less than those of the H-13 are desired.)	Yes
(2) It is desired that the helicopter have provisions (e.g., reinforced blade leading edges and tips, elimination of projections, protected air intakes, etc) to facilitate operation at treetop level.	No
(3) Basic weight of the helicopter will encompass all installed equipment, to include up to 100 pounds of communications and electronics.	No
d. Crew station.	
(1) The following are required:	

Military Characteristics	Brantly B-2 Meets M/C's
(a) Two seats, side by side.	Yes
(b) Dual primary flight controls. The secondary cyclic control stick shall be easily removable.	Yes
(c) Instrumentation will be limited to that required for day and night marginal visual flight conditions, but will include an attitude indicator, and stable directional instrument.	No
(d) All switches and auxiliary controls necessary for flight and navigation accessible to the pilot, and within reach of the second crew station; switches and controls shall be operable when personnel are wearing winter flight clothing.	Yes
(e) Adjustable directional control pedals.	No
(f) Maximum practical all-around (to include rearward) visibility for pilot and observer.	No
(g) Emergency exits from the cockpit of sufficient size to permit exit of personnel wearing winter clothing.	Not determined
(h) Windshield defogging.	No
(2) It is desired that the pilot station generally conform to the latest revision of MIL STD 250.	Yes, with the following exceptions: 1. Trim devices inadequate.

Military Characteristics	Brantly B-2 Meets M/C's
	2. No rotor brake safety device. 3. Landing light switch inconvenient. 4. Radio transmitter switch not trigger type. 5. Basic flight instruments incomplete. 6. No shoulder harness. 7. Inadequate seat adjustment.
e. Passenger and cargo area.	
(1) The following are required:	
(a) Seating capacity for two, easily stowable when not in use. This requirement is intended to provide only the very minimum provisions for those missions requiring additional passenger space.	No
(b) Jettisonable (for emergency exit) doors.	No
(c) Provisions to facilitate easy cargo loading and unloading.	No
(2) The following are desired.	
(a) Doors operable in hover.	Yes
(b) Provisions for straight through lateral loading of items longer than the fuselage width, without removal of doors.	No

Military Characteristics	Brantly B-2 Meets M/C's
(c) Maximum visibility.	No
f. Integral equipment.	
(1) General. - A self-contained starter system is required that does not normally require an external power source.	Yes
(2) Avionics. - The avionics equipment listed in paragraph 11 shall be installed.	No
(3) Electrical. - The following are required:	
(a) Standard external power receptacle.	No
(b) Lighting.	
1. Adequate lights for night flight.	Yes
2. Anticollision light. (Nontactical equipment, removable components chargeable to payload.)	No
(4) Environmental protection.	
(a) Design should minimize fire danger; special consideration will be given effect of small arms fire, and placement of heater and engine exhaust with reference to fuel vents and vegetation.	Yes, except effect of small arms fire.
(b) Cabin areas should be laid out with consideration given to the installation of an armor kit.	No

Military Characteristics	Brantly B-2 Meets M/C's
(c) Crashworthiness features shall be considered in seat and other critical design areas.	Undetermined
(d) Consideration shall be given to enhancing passive defense characteristics by reduction of infrared and radar reflectivity.	Undetermined
(e) Consideration shall be given to design and use of materials to provide ease of decontamination.	Undetermined
(5) Armament. - The design will be adaptable to installation of light armament kits proposed for development concurrent with this helicopter. Included among these kits will be those of the XM-75 and light aircraft machine-gun types.	Doubtful, with respect to payload.
8. Performance.	
a. The following capabilities are required at design gross weight. All capabilities are under NASA standard sea-level conditions except (5), below.	
(1) Payload (useful load less 200-pound pilot, oil, and 3.0 hours fuel) 400 pounds	No
(2) Cruise speed 110 knots	No
(3) Endurance at 85% of cruise power 3 hours	No
(4) Hover (out of ground effect, 95°F, at design gross weight) 6,000 feet	No

Military Characteristics	Brantly B-2 Meets M/C's
(5) Autorotative capability: Safe autorotation in the event of power failure. If a servo or control boost is used, such mechanism shall be operable during autorotation.	Yes
(6) Stability and control: Use of automatic stabilization equipment (ASE) is not desired. Stability characteristics shall be better than that of current H-13/H-23 helicopters. Maximum stability will be provided in cruise condition; maximum control will be provided in landing and takeoff. It is desired that stability in cruise be equivalent to that of an airplane, and that the design permit maximum controllability within the design load limit factor at high-speed low-level flight.	No
b. In addition to the above performance, the helicopter shall have an overload capability of hovering out of ground effect under NASA standard sea-level conditions with the maximum payload the available power will lift.	Undetermined
c. It is desired that this aircraft be capable of operating in an emergency on any standard Army aviation or automotive fuel.	Undetermined
9. Durability and reliability (Required).	
a. Maximum consideration will be given to forward area self-sufficiency, supportability, reliability, maintainability, and ease of servicing. The helicopter will be	Undetermined

Military Characteristics	Brantly B-2 Meets M/C's
capable of continuous operation in the forward area with only such maintenance as can be provided by one mechanic with hand tools.	
b. The helicopter will incorporate a minimum number of dynamic components, which will be of the simplest design with a minimum of maintenance and service requirements. All dynamic components will have a minimum service life in excess of 1,000 hours.	Yes
c. The design will permit an operating time of 300 hours between periodic inspections. Design will also facilitate component replacement under field conditions with a minimum of special tools or equipment.	Yes
d. Engine and dynamic components shall not be materially affected by dust, sand, moisture, etc, encountered in the operation from the unprepared areas.	Undetermined
10. Transportability.	
a. This helicopter shall be readily transportable in Phase II airborne operations without major disassembly or reassembly effort.	Yes
b. To the extent that it does not penalize required characteristics, consideration will be given to transportability by truck, rail, and military sea transport.	Yes

Military Characteristics	Brantly B-2 Meets M/C's
11. Associated equipment.	
a. Avionics (not to exceed 100 pounds). - The following are required:	
(1) Complete provisions for UHF or VHF communication radio. (Only one will be installed at any time.)	No
(2) FM radio with auxiliary receiver and FM homer.	No
(3) Intercommunications (two stations).	No
(4) Headset and microphone for the second crew station.	No
(5) Complete provisions for the Automatic Direction Finder, Navigation Set.	No
(6) Space weight and power for the new battlefield identification system. (CDOG subpar. 1536b(11).)	No
b. Radiacmeter. - Space will be provided for eventual installation of a radiacmeter.	Undetermined
c. Armament. - See subparagraph 7f(5) above.	No
d. Other equipment. - Other installed equipment will be kept to a minimum consistent with tactical requirements.	Yes
III - SPECIAL CHARACTERISTICS	
12. Environmental and terrain requirements.	

Military Characteristics	Brantly B-2 Meets M/C's
a. Operating environment. - The following are required:	
(1) The capability of operation in a temperature environment ranging from -25°F to +115°F without modification.	Undetermined
(2) Cockpit ventilation to provide endurable cockpit and cabin environment with outside temperature of 115°F.	Undetermined
(3) A heater to provide an inside temperature of +40°F with an outside temperature of -25°F. This condition need only be met with the engine operating.	Undetermined
(4) Appropriate provisions for installation, without modification to the airframe, of a kit to allow operation and provide inside temperature (crew area) of 0°F. with an outside temperature down to -65°F. This condition need only be met in flight, though the heater should be operable while the aircraft is on the ground.	Undetermined
(5) The design shall permit tactical operation as described in paragraph 2 above to include exposure to dust, sand, moisture, landing on ground covered by vegetation, etc, encountered in such an environment.	Undetermined
(6) Noise level in the cockpit shall not exceed 90 decibels. (Less than 90 decibels is desired.)	Yes

Military Characteristics	Brantly B-2 Meets M/C's
b. Storage environment. - Design must conform with subparagraph 7d, AR 705-15.	Yes
13. CBR and atomic requirements. - See subparagraphs 7f(4)(e) and 11b above.	Undetermined
14. Kit requirements. - The following are required:	
a. Provisions for winterization kit. - See subparagraph 12a(4) above.	Undetermined
b. Adaptability to armament kit(s). - See subparagraph 7f(5) above.	No
c. Range extension will be accomplished utilizing equipment such as that developed under DA CofT Project 9-38-OI-000.	Undetermined
15. Maintenance and interchangeability requirement. - Design shall provide for:	
a. Ease of unit replacement of major components under field conditions. Quick disconnects shall be utilized wherever possible. The go-no-go design principle shall be employed throughout.	Undetermined
b. Ease of maintenance, servicing, and ground handling at the using echelon (see para. 2 and 9).	Yes
c. Interchangeable and individually replaceable rotor blades.	No

Military Characteristics	Brantly B-2 Meets M/C's
d. Direct reading fluid reservoir level gauges if possible.	No
e. Capable of reliable operation between 300-hour periodic inspection intervals.	Undetermined
16. Human factors engineering requirements. - Principles of human factors engineering will be applied in all aspects of design which influence the operation and maintenance of this aircraft.	Not entirely

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